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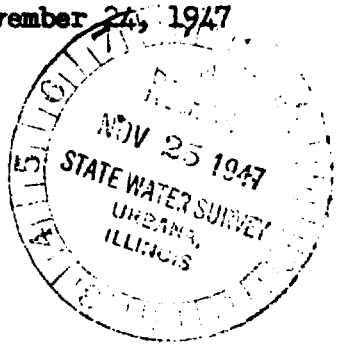
EAST ST. LOUIS AND INTERURBAN WATER COMPANY
513 MISSOURI AVENUE
EAST ST. LOUIS, ILLINOIS

CHARLES M. ROOS, MANAGER
S. C. CASTEEL, ASS'T. MGR.

IN REPLY PLEASE REFER TO
FILE No. 4 -442

November 24, 1947



Dr. Max Suter
State Water Survey Division
University of Illinois
Urbana, Illinois

Re: Ground Water Supply, -
Monsanto Chemical Company

Dear Dr. Suter:

I thank you for your letter of November 22 and for the copy of your communication of same date to Mr. Hileman of Cairo. I will follow up your Cairo letter to Mr. Hileman by telephone and inform you of the status of the work which Leo Wilson is supposed to be doing.

Today Mr. Casteel and I have had a long conference with Mr. L. C. Fuhrmeister, engineer representing Monsanto Chemical Company, who is doing research work for a long range program for water supply for his Company. During our conference we referred to you as the best informed person on ground water supplies in this area and suggested that Mr. Fuhrmeister communicate with you to obtain advice as to some of his problems and study of this subject.

At the present time the Monsanto Company is using water at the following rates:

1. They purchase from us about 2.0 mil. gals. per day.

2. They use from their wells about 9.3 mil. gals. per day or 6500 gals. per minute.

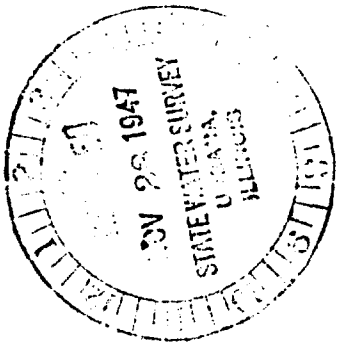
Mr. Fuhrmeister is approaching this matter in a thorough manner and is giving consideration to the following possibilities or a combination of some of them:

1. Constructing more spray ponds and/or cooling towers to permit reusing much of the water and thus reducing the quantities they will take from the ground, with the possibility of using more of our water for make-up.

2. The possibility of returning at least some of the water to the ground water bearing strata, up to such point where the temperature of the ground water is not affected too much.

3. Constructing an iron removal and softening plant to treat all or part of the ground water.

MONSANTO CHEMICAL COMPANY



ORGANIC CHEMICALS DIVISION
MONSANTO, ILLINOIS

November 26, 1947

Dec 8

Dr. Max Suter
State Water Survey Division
University of Illinois
Urbana, Illinois

Dear Dr. Suter:

On the 24th day of November, Mr. C. M. Roos of the East St. Louis and Interurban Water Company wrote you a letter in which he discussed water problems confronting the Monsanto Chemical Company.

Mr. Roos mentioned that you were one of the country's leading authorities on well water problems and especially on returning water to the ground. I am especially interested in this phase of the problem and would appreciate any information or advice you would have to offer.

As Mr. Roos mentioned we are now pumping on an average of 6500 g.p.m., and within a few years we may have to double this figure. We are greatly troubled with the oxidation of iron which forms a heavy red scale in our pipes and condenser tubes.

If it can be arranged, I would like to meet you and discuss this problem further. If you plan to be in St. Louis within a week, perhaps we could arrange a meeting then; otherwise, I would like to arrange to go to Urbana.

Very truly yours,

L. C. Fuhrmeister

LCF/ap

STATE WATER SURVEY

REFERRED TO		DATE
A. M. B.		
C. O. R.		
M. S.	✓	
T. E. L.		
J. J. D.		
FILE		

EAST ST. LOUIS AND INTERURBAN WATER COMPANY
513 MISSOURI AVENUE
EAST ST. LOUIS, ILLINOIS

CHARLES M. ROOS, MANAGER
S. C. CASTEEL, ASS'T. MGR.

IN REPLY PLEASE REFER TO
FILE No. 4 Personal

December 3, 1947

Dr. Max Suter
c/o State Water Survey Division
University of Illinois
Urbana, Illinois

Dear Dr. Suter: Industrial Ground Water Supply in East St. Louis

Please regard this as a personal letter, I tried to call you by telephone today but you were out, and I am writing this letter to discuss several matters referring to water supply for Monsanto Chemical Company. I am trying to plan to accompany Mr. Fuhrmeister on his trip to confer with you December 8, but I am not sure I can get away, as I have several other engagements for the same day.

At the present time we are supplying Monsanto Chemical Company about 2-1/2 million gallons of water per day, and they are pumping from their wells about 9 million gallons per day. This pumpage from wells, of course, is too high to expect the wells within such a small area to remain in operation continuously.

As stated in my recent communication, as a long range program the Monsanto Company is considering establishing their own supply from the river. In the meantime they want more water from us. We have completed plans to install an additional 20" pipe line to Monsanto all the way from near our plant, which will be an express transmission line all the way to the Monsanto Plant. Materials have been ordered and we expect to have the new line installed before the 1948 summer load develops. Naturally we do not want to make this large capital expenditure as a temporary installation, and then have the Monsanto Company install their own river supply and abandon our service.

I confidently believe we can sell Monsanto water cheaper than they can produce it through a river supply plant of their own. I think Mr. Fuhrmeister is of the same opinion, although he must satisfy his superiors about this. Of course I know they can produce water from their own wells cheaper than we can sell it, and we much prefer to have them use all the well water they can, and get from us only the remainder of their requirements.

The advantage to them of using well water for condensing and cooling purposes is that it has a year around uniform temperature of about 60 degrees. Temperature of our water fluctuates from 37 to 87 degrees, following seasonal changes as you know. Mr. Fuhrmeister is thinking of reducing the quantities of water required from any source by installing spray ponds and colling towers. A large portion of their

water can be recirculated and not wasted, and the make-up water would be in relatively small quantities.

I have in mind for a plan for this Company some of the following ideas, or a combination of some of them:

1. Additional wells to be installed a mile or two from the plant, with remote control pump operation and with pipe lines leading to the plant. This would be much cheaper than to construct a river supply plant, and they would have the temperature advantages.

   Stabilization of the river channel is a real problem to be included in any river intake plant. We have learned the hard and expensive way about this from experience at our old Low Service Steam Plant, and the old Granite City plant on Gabaret Island which we acquired a long time ago and operated for some years. This plant was abandoned for the primary reason that the river channel could not be controlled or stabilized. Our Chouteau Station, constructed twenty years ago, cost about a million dollars. It would cost much more now. Great difficulty was experienced in getting down to the proper elevation for gravity flow from the river, due to unstable soil. This cost did not include the very expensive transmission line. In constructing the Fox Terminal Elevator not far downstream from the Monsanto Plant, along the river bank, the same expense and problems were encountered. Even after the structure was completed it was necessary to make an additional heavy investment to stabilize the soil under and around the building.

   If the Monsanto Company constructs a new river plant they must have a complete filter plant (without chlorination) as they need water free of turbidity and matter in suspension. They will also need a high service pumping station. The filter plant and sedimentation basins must be not less than 15 M.G.D. and the pumping capacity of both low and high service stations should be double daily capacity or 30 M.G.D. each. Of course the stations would be electrically operated.

2. Construct an iron removal and softening plant to treat the well water.

3. Balance up their total use of water by using as much as they can advantageously from wells and use the remainder from us.

4. I am thinking in terms that it would be good business for Monsanto Company to enter into a long term contract with us for a minimum quantity of X million gallons per day, with a maximum of X million gallons at some special rate mutually satisfactory. Upon such a basis we could install the necessary supply and transmission facilities to meet such demands, and

we certainly could deliver it to them cheaper than they could produce it themselves from the river, as we would not have to increase our plant personnel to take on such business. The overhead and supervision likewise would be absorbed without increasing such expense to us.

Referring to your Metropolitan Plan Association data letter of December 1, you refer to one inch of rainfall furnishing 17.3 million gallons of water per square mile. Our local annual rainfall is about 38 inches. This means 657.4 million gallons per square mile, or about 131,480 million gallons for the approximately 200 square miles in the American Bottoms. At the present rate of pumpage of 85 million gallons per day, 150 days pumpage per year would or should permit the water table to remain uniform.

You of course have the figures on absorption of rainfall in this area and know a lot more about it than I do. I remember of your telling me at one time that you found the absorption in the Bottoms here is primarily from the rainfall upon the bottom area itself without much influence due to the run-off or absorption from the adjoining upland area. I am wondering, however, as the water table in the bottom area goes down, whether the run-off from the uplands would not affect the water table in the bottoms at an accelerated rate.

At any rate, I note from your water table map that the area influenced by the Monsanto wells is relatively small. It is this situation which leads me to believe that two or three wells about two miles or less from the Monsanto plant, piped to the site, would give them an abundance of ground water for a long time, by continuing to use the existing wells at a lower rate of pumpage.

I also note, as you have told me, that the general rise and fall of the water table goes in cycles, depending upon the cycles in rainfall. At the present time it is higher than two years ago.

With this letter you can know my thinking on this matter. If I cannot make the trip with Mr. Fuhrmeister, or even if I do, you will know in advance the problem as I view it.

Cordially yours,

C. M. Roos

STATE WATER SURVEY

REFERRED TO		DATE
A. M. B.		
C. O. R.		
M. S.	✓	
T. E. L.		
J. J. D.	CMR:rts	